



Air Quality Summary—June 2011



There were higher than normal PM_{2.5} readings and elevated ozone levels during the first half of the month of June. DEQ forecasted a record number of consecutive ozone action days during this time. While weather conditions were favorable for the formation of ozone, remnant smoke from fires throughout Mexico and the southern United States enhanced both ozone and particle production, especially across southern Louisiana.

Baton Rouge Area

OZONE

There were seven days that exceeded the National Ambient Air Quality Standard (NAAQS) for ozone in the Baton Rouge area during the month of June 2011. See the table below for detailed information.

Ozone Action Days: June 1, 4, 5, 6, 7, 8 and 9—Code Orange/USG

PM_{2.5}

There were no violations of the NAAQS for PM_{2.5} in the Baton Rouge area during the month of June 2011. Please see the chart on the next page for detailed information on PM_{2.5} levels throughout the state.

Other Areas of the State

OZONE

The following is a list of days that exceeded the NAAQS for ozone in areas of the state other than Baton Rouge during the month of June 2011:

New Orleans—2 days, 6/7/11 and 6/12/11

Action Days: June 4 and 9—Code Orange/USG

Lake Charles

Action Days: June 4

Shreveport—1 day, 6/7/11

Action Days: June 4—Code Orange/USG

PM_{2.5}

There were two violations of the NAAQS for PM_{2.5} on June 5, 2011; one at the Shreveport Airport site and one at the Madisonville site.

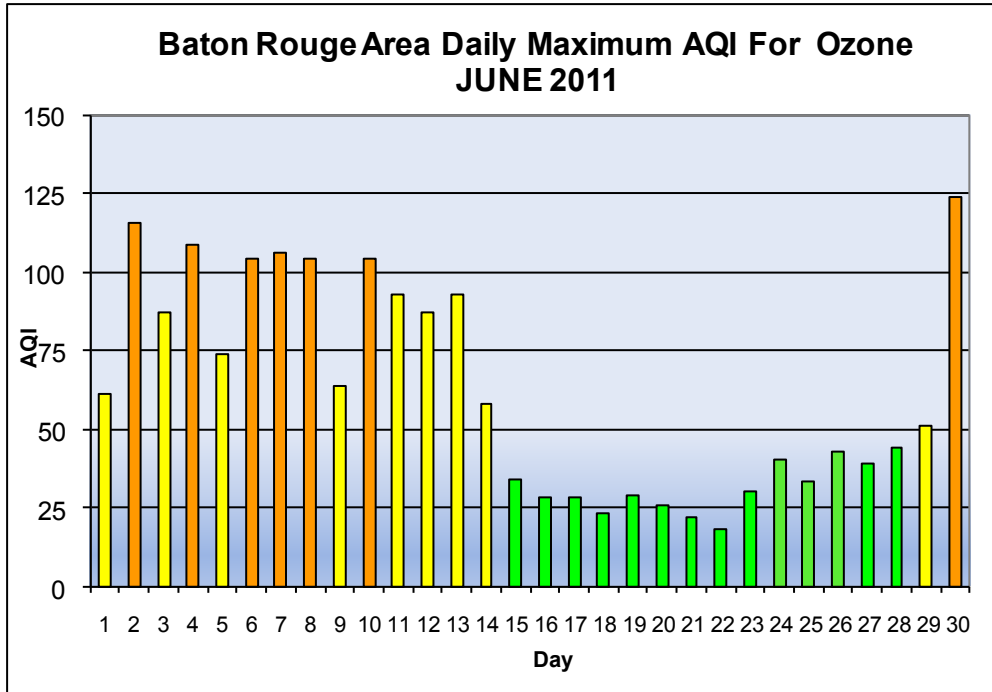
Statewide 8-HR Ozone Readings Above 75 ppb - June 2011

DATE	AQI	8-HR OZONE Concentration (ppb)	MONITORING SITE
6/2/2011	116	82	Bayou Plaquemine
6/4/2011	109	79	Bayou Plaquemine
6/6/2011	104	77	Bayou Plaquemine
6/7/2011	109	79	Madisonville
	106	78	Dutchtown
	104	77	Capitol
	104	77	French Settlement
	104	77	Shreveport Airport

DATE	AQI	8-HR OZONE Concentration (ppb)	MONITORING SITE
6/7/2011 (cont.)	101	76	Pride
	101	76	Dixie
6/8/2011	104	77	New Roads
6/10/2011	104	77	New Roads
6/12/2011	101	76	Mereaux
6/30/2011	129	87	French Settlement
	109	79	Dutchtown

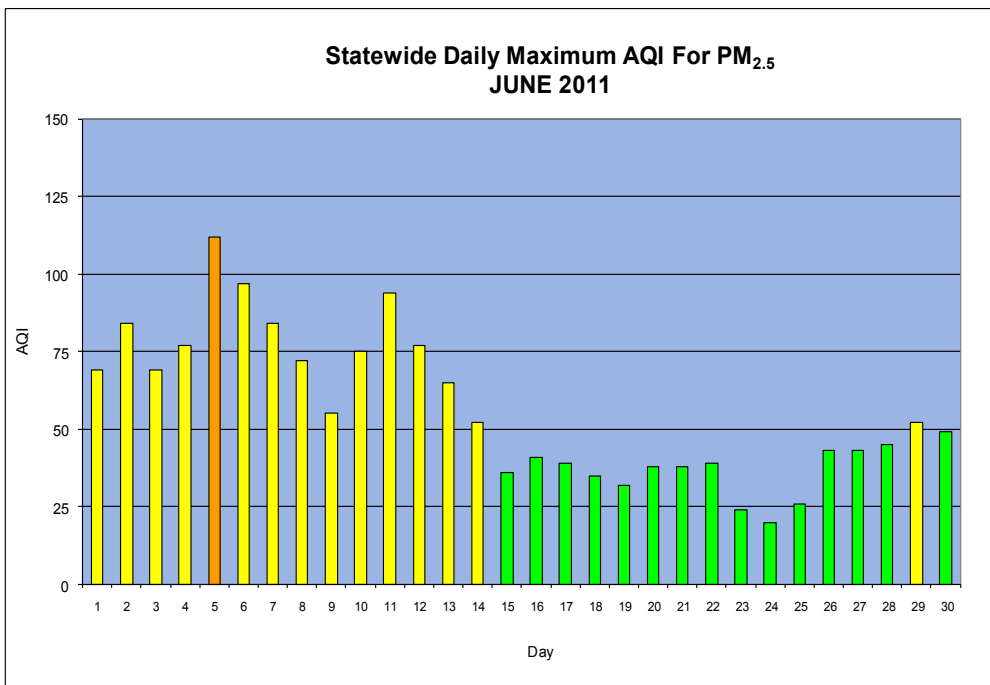


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0-50	Good
51-100	Moderate
101-150	Unhealthy for Sensitive Groups
151-200	Unhealthy
201-300	Very Unhealthy

Statewide High PM _{2.5} 24-Hour Average Readings - JUNE 2011			
DAY	UG/m3	AQI	SITE
1	23	69	Capitol
2	29	84	Port Allen
3	23	69	Alexandria
4	26	77	Alexandria
5	42.4	112	Shreveport Airport
6	34	97	Chalmette Vista
7	29	84	Capitol
8	23.9	72	Westlake
9	17	55	Capitol
10	25.4	75	City Park
11	32.9	94	City Park
12	26	77	Alexandria
13	21	65	Alexandria
14	15.9	52	Monroe
15	11	36	Alexandria
16	12.5	41	Lafayette
17	12	39	Alexandria
18	10.8	35	Shreveport Airport
19	10	32	Capitol
20	11.7	38	Chalmette Vista
21	11.6	38	Chalmette Vista
22	11.9	39	Chalmette Vista
23	7.5	24	Port Allen
24	6.2	20	Shreveport Airport
25	8	26	Capitol
26	13.3	43	Westlake
27	13.1	43	Kenner
28	14	45	Capitol
29	16	52	Capitol
30	15	49	Capitol



Baton Rouge Climate Summary—June 2011

**Prepared by: Jay Grymes*

(based on available preliminary data as of July 13 2011)

June 2011's monthly temperature at Baton Rouge Metro Airport averaged 83.9°F, a whopping 4.2° above the monthly norm. June marks the fifth consecutive month with above-average temperatures at Metro AP, with 13 of the past 15 months running above the monthly norms. (Over that 15-month period, only December 2010 and January 2011 had cooler-than-average monthly norms. In fact, dating back to January 2001, nearly 7-in-10 months at Metro AP have averaged above the norm.)

June's average temperature of 83.9° for Metro AP ranks as the "hottest" June on record and continues a recent trend of above-average Junes, with June of 2009, 2010 and now 2011 all ranking among the five "warmest" Junes for Baton Rouge (based on records back to at least 1905). In addition, Baton Rouge's three-month (Apr-May-Jun) average temperature for 2011 also ranks among the top five "warmest" for that period (although behind the same period for 2010).

Daily maximum temperatures at Metro AP during June 2011 reached 90° or above on 28 days (compared to a long-term average of 18.9 days) -- tied for fourth for the number of 90° days in June (June 2006 & 1960 hit the 90°s on all 30 days). June's run of hot weather includes five consecutive daily record highs to open the month, with daily maximums in the triple-digits on four dates (June 1, 2, 4 and 5)! Indeed, daily average temperatures were above-normal for all but June 22 and 23, during one of the month's periods of wet weather.

Table 1: Average "daylight hours" sky conditions (to 12,000 ft) during June 2011, based on automated ASOS observations from Baton Rouge's Metro Airport.

Sky Condition: Sunrise to Sunset (Sky Coverage)	Clear to Mostly Sunny (0/10ths – 3/10ths)	Partly Cloudy / Partly Sunny (4/10ths – 6/10ths)	Mostly Cloudy to Cloudy (7/10ths – 10/10ths)
No. Days	25	5	0

Official sunrise-to-sunset periods for Baton Rouge during June, excluding 'Civil Twilight,' range from 14.0 hours (June 1) to 14.1 hours (June 30).

Rainfall was below normal for all but one site in the Baton Rouge metro area (based on sites included in Table 2) during June 2011, although June departures were far from as extreme as those reported during May. Metro AP's June total of 4.74" was less than 1" short of the monthly norm. But Metro AP's spring total, due to dry weather during April and May, is particularly noteworthy: the three-month (Apr-May-Jun) total of a modest 6.32" ranks as the 4th lowest for that period since at least 1930, and the lowest since 2006. Little surprise the region is suffering through a rather intense drought.

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Table 2: June 2011 rainfall for selected rainfall reporting stations across the greater Baton Rouge metro area. (Data are preliminary and provided courtesy of the National Weather Service, the LSU Southern Regional Climate Center, the USGS, the LSU AgCenter, and the CoCoRaHS Volunteer Network.)

Rainfall-Recording Site	Monthly Rainfall	Monthly DFN	No. Days ≥ 0.01"	No. Days ≥ 1.00"
BR - Metro AP	4.74"	-0.59"	12	1
<i>NWS Cooperative Network Sites</i>				
BR - Concord Estates	3.64"	-2.33"	10	0
BR - Sherwood Forest	3.21"	-2.17"	10	1
Denham Springs	4.59"	-0.72"	10	2
Gonzales	4.94"	-1.22"	12	1
Livingston	5.91"	+0.16"	9	2
New Roads	3.94"	-0.63"	8	1
Oaknolia	M	M	M	M
Port Allen	M	M	M	M
<i>USGS HydroWatch Selected Sites</i>				
Clinton (07377195)	5.72"	--	13	2
Zachary (07377750)	M	--	M	M
Comite nr. Comite (07378000)	M	--	M	M
Prairieville (07380102)	2.88"	--	17	0
Pt. Vincent (07380120) (0.1")	3.60"	--	--	2
French Settlement (07380200)	4.56"	--	10	1
<i>LSU AgCenter LAIS Automated Stations</i>				
LAIS - Ben Hur Farm	3.92"	--	11	1
LAIS - Burden Plantation	M	--	M	M
LAIS - St. Gabriel Res Sta	5.10"	--	12	2
<i>CoCoRaHS Volunteer Observers</i>				
Old Jefferson 0.9 W (LA-EB-21)	M	--	M	M
Shenandoah 0.8 W (LA-EB-36)	1.79" (i)	--	M	M
Monticello 3.0 ENE (LA-EB-19)	2.86"	--	10	0
Brownfields 5.8 NE (LA-EB-9)	5.65"	--	13	1
Baton Rouge 2.5 E (LA-EB-27)	4.15"	--	11	2
Baton Rouge 2.7 SW (LA-EB-2)	4.15"	--	10	2
Zachary 3.5 WNW (LA-EB-28)	4.59"	--	11	2
LSU Campus (LA-EB-33)	3.90"	--	10	2
WAFB-TV, Downtown BR	4.17"	--	10	2

DFN - Departure-from-Normal
M - Monthly Report Unavailable
"--" - Normals Not Available

(i) - Monthly Report May Be Incomplete
(e) - Estimated Value
(0.1") - 0.1" Resolution Only

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Of the 20 sites in Table 2 with complete records, two reported less than 3.0" of rain for June 2011 while four recorded in excess of 5.0" for the month. June's regional (unweighted) average rainfall for these sites was 4.31", with a median of 4.15" -- drier-than-normal, but not critically dry were it not for the rainfall shortages occurring during the previous two months.

Rainday counts for the 20 complete sites ranged from 8 to 17 days, with a group median of 10 raindays -- comparable to the long-term monthly average of 10.9 raindays for Metro AP. All but three sites reported at least one daily total of 1.0" or more, with half the sites recording single-day totals of more than 1.0" on two dates.

June 2011 reports from the Metro Airport ASOS weather platform included:

- 9 days with thunder, compared to a monthly average of 10.0 days;
- 10 days with fog, but no days with "dense" fog (visibility less than 1/4-mile); and
- notable smoke and/or haze on June 11th and again on the 29th.

June 2011 winds at the Metro Airport ASOS platform averaged 5.9 mph, below the 47-year June average of 6.6 mph. Daily wind speeds during June 2011 averaged below 5.0 mph on 17 dates, including all but three dates between June 1-13. Daily winds averaged above 10.0 mph during a four-day stretch, June 17-20.

Drought Status:

The weekly ***U.S. Drought Monitor*** (USDM) as of 5 July 2011 shows nearly 64% of the Bayou State as rated under "Exceptional Drought" (D4), the most intense level of drought according to the USDM scheme. Note that essentially all of the Baton Rouge metro area is categorized as under D4 as of early July. The drought has steadily strengthened its grip on Louisiana during the spring and early summer, with June being one of the hottest month's on record from a statewide perspective, adding to evaporative demand and vegetative stress.

There is some difference of opinion amongst various weather, agricultural, and climate experts regarding the early July USDM rating for portions of south Louisiana. The Baton Rouge metro area's regional June rainfall of roughly four inches or more would serve as fuel to argue against the area's D4 classification as of the end of June and early July. Regardless, the drought is clearly having a negative impact on the urban, suburban, natural and agricultural landscapes around the 'Red Stick' and most of Louisiana, and a prolonged run of wetter-than-normal weather will be required to ease the local and regional moisture shortages.

The Extended Outlook:

As of the end of June, the NWS/CPC two-week outlooks suggest a shift towards a "wetter" pattern for south Louisiana through the first half of July, although daily temperatures are likely to remain at or above normal. By contrast, the CPC's one-month forecast for July calls for a 70% to 75% chance of near-normal to below-normal rainfall for the Baton Rouge metro area, with better-than-average odds of continued warmer-than-normal days for the month as a whole.

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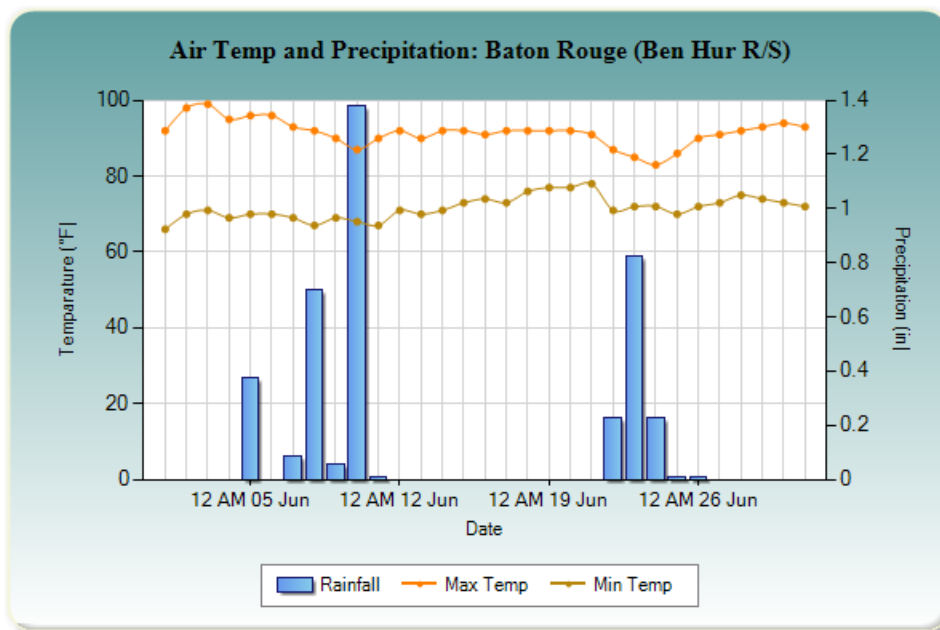
(based on available preliminary data as of July 13, 2011)

Three-month outlooks (Jul-Aug-Sep) offer no real insight as to longer-term rain probabilities, but continue to lean towards warmer-than-normal weather through the summer. In general, these outlooks offer little hope for an extended run of wetter-than-normal weather to quickly alleviate regional drought stresses during the summer season.

Tropical Outlook:

A short-lived *T.S. Arlene* developed over the southwestern Gulf and made landfall along the coast of Mexico during the final days of June. Most of June saw a fair degree of mid/upper-level shear over the tropics, limiting the potential for tropical waves to become better organized. But most tropical researchers believe that the 2011 season will see considerably less shear than was observed during 2010, and consensus forecasts are currently calling for between 12-20 (with a median of 15) 'named' storms in the Atlantic basin this season: roughly half are expected to reach hurricane strength. Historically, roughly 1-in-3 Atlantic storms are Gulf systems, so all indications are that the Gulf can be expected to be quite active in the coming months.

Figure 1: June 2011 *Daily Max/Min Temperatures and Precipitation* as recorded by the LSU AgCenter/LAIS Weather Station located at LSU-Ben Hur Farm (Nicholson Drive).



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Figure 2: June 2011 *Daily Solar Radiation and Max/Min Daily Temperatures* as recorded by the LSU Ag-Center/LAIS Weather Station located at LSU-Ben Hur Farm.

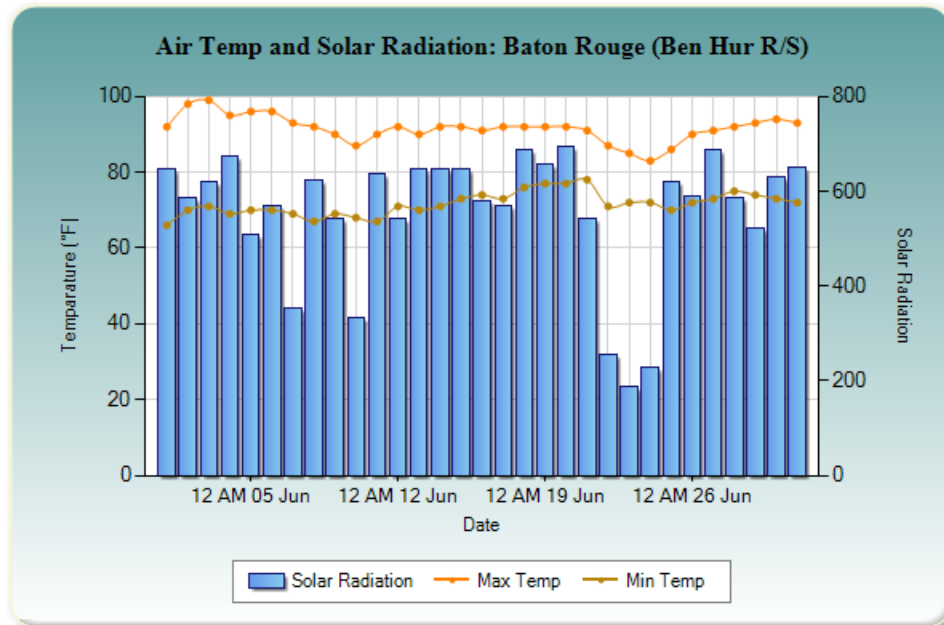
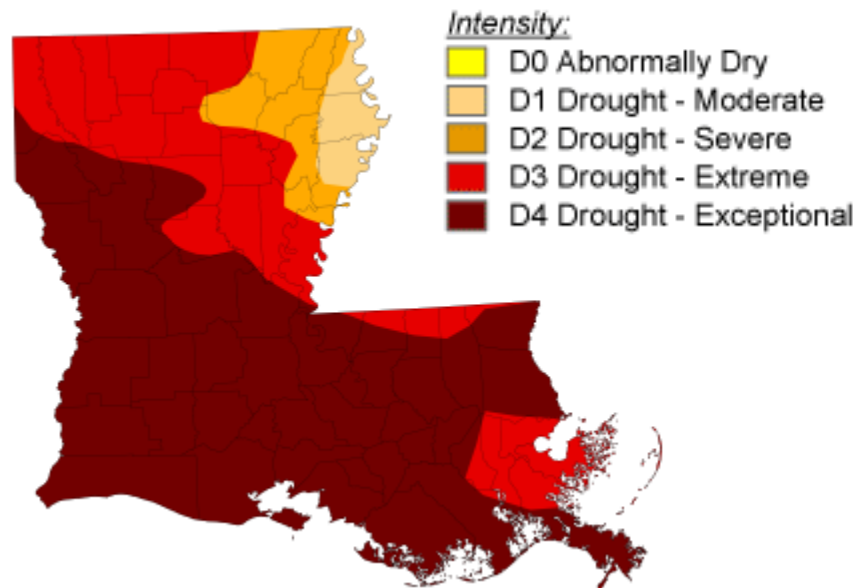


Figure 3: Weekly **U.S. Drought Monitor** depiction for 5 July 2011.

Source: <http://drought.unl.edu/DM/>



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Acknowledgements:

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- U.S. Drought Monitor (<http://drought.unl.edu/DM/>)
- NWS Climate Prediction Center (NWS/CPC)
- NWS Storm Prediction Center (NWS/SPC)
- NWS Hydrometeorological Prediction Center (NWS/HPC)
- NOAA/National Climatic Data Center (NCDC)
- USGS, Louisiana
- WAFB-TV (Ch. 9), Baton Rouge

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**Jay Grymes, LSU AgCenter Climatologist and WAFB Chief Meteorologist, provides the climatology portion of this report as a free service to DEQ and the citizens of Louisiana.*